and even more extraordinary examples than this could be adduced. To return to the diseases of the Lizards, I may add, that the tubercular are the most common.

Ophidians.—In this division one of the most remarkable and peculiar diseases is found. It will be remembered that a few years since a great mortality occurred among the serpents; nearly all of them died, and I had an opportunity of examining a great many of them. The disease, which I believe is highly contagious, consists of ulceration of the lining membrane of the mouth, and the deposit of masses of semitubercular matter in different parts of the intestinal tube, but chiefly in the rectum, blocking up the canal, and producing obstruction. With this form of disease there is also a peculiar condition of the blood. Some of the reptiles dying of this affection were very fat, especially the Puff Adders (*Clotho arietans*).

Tubercles in the liver, lungs, and other parts in the Ophidians, are very frequently met with. In the Boa which some years ago was said to have swallowed a blanket, it will be seen by the drawings now exhibited that the lungs and liver were thickly studded with small miliary tubercles; but the immediate cause of death was inflammation of the pericardium (heart-bag): upon this, and hanging from it, were large flakes of lymph partly organized.

Batrachians.—I have had but few opportunities of examining specimens of this order soon after death, and therefore cannot speak of their diseases.

I may make one observation respecting the reparative power in the reptiles. In many of them it is very rapid. In a Boa that had its tail accidentally jammed off, the part was very quickly repaired; and I have seen many instances of the same kind in reptiles; and, if the accounts are to be believed, the large Salamander (*Sieboldia maxima*) just obtained by the Society will reproduce its extremities —bone, muscle, integument, and other parts.

In bringing this imperfect sketch to a conclusion, I may observe that my time and space have been too limited to do justice to the subject; but I trust that the information conveyed will not prove altogether unprofitable.

March 27, 1860.

Professor Busk, F.R.S., F.Z.S., &c., in the Chair.

Mr. John Petherick exhibited the head and horns of a rare Antelope from Central Africa (*Antilope leucotis*, Licht., Mem. Acad. Berol. 1854, p. 99).

The Secretary exhibited an egg of the King Vulture (*Gyparchus*

papa), laid in the Society's Gardens. This was believed to be the first well-authenticated specimen known of the egg of this Vulture. The shape was oblongo-ovate, considerably pointed towards the smaller end; the colour pure white; length 3·7 inches, breadth 2·65. As the egg was supposed to be impregnated, it was in contemplation to attempt to hatch it under a hen of the domestic fowl.

The Secretary also exhibited a second egg laid by the female *Apteryx mantelli* in the Society's Gardens in February last. It differed but slightly from that previously produced by the same bird, being merely somewhat larger.

The following papers were read :—

1. Remarks on the Stomach of the Potamochœrus penicillatus. By T. Howard Stewart, F.Z.S.

The stomach of the *Potamochœrus* has the usual type of structure, such as exists in all the *Artiodactyla*. It is divided partially into three compartments, viz. the *cardiac sacculus*, situated to the left of the cardiac or œsophagal opening; the *cuticular* portion around the cardiac orifice; and the digestive or *pyloric* division: these communicate freely with one another.

This stomach differs from that in the genus *Sus* in having the cardiac sacculus larger, and in the cuticular layer around the œsophagal opening being somewhat different in arrangement.

In *Potamochœrus* the cuticular portion is well defined, and has a raised crenulated margin, and its entire surface much wrinkled. Microscopically, it shows an epithelial structure, which is raised on the surface into conical papillæ, such as are seen on a larger scale in the reticulum of Ruminants.

In *Sus* the cuticular portion is not so markedly distinct from the mucous or digestive portion; it has, however, a defined and slightly raised non-crenulated margin; the surface is quite smooth, and of a white non-vascular colour.

It becomes a question of interest, in examining the arrangement of the stomach in these Artiodactyles, as to what may be its function in the digestive process. I believe that the food, first passing into and being mixed with the secretion from the cardiac sacculus, goes on to the cuticular portion of the stomach, and undergoes there a kind of maceration, and is then forwarded to the pyloric or true digestive portion of the viscus. May not this cuticular part of the stomach be analogous to the *reticulum* or second cavity in the stomach of the true Ruminants? This peculiar lining of a portion of the stomach exists in all the Pachyderms, in the Horse, and in all the Artiodactyles, and also in the Kangaroo, under various modifications. The Kangaroo has been known to ruminate when fed on hard food; may not an occasional act of rumination take place in this *Potamochœrus*, and others of the same class? The cuticular

layer is more developed in the *Potamochœrus* than in other animals of the class I have been able to examine; from this we may infer that this animal is of a more vegetable-eating nature than our omnivorous Hog.

2. Note on the Fox of Japan. By Arthur Adams, F.L.S.

The Fox of Japan is quite a distinct species from that of China, specimens of which I procured on the banks of the Wusung River, near its junction with the Yang-tze-kiang. The Japanese species, four skins of which were obtained by Mr. Bedwell from Niegata in Nippon, has black ears lined with white, and a black spot on the upper surface near the base of the tail. The colour of the fur on the neck and back is ferruginous, and is much softer and longer than that of the Foxes of Europe and China, and the brush is also longer and thicker.

3. Memoranda on the Hippopotamus and Balæniceps recently imported to England, and now in the Gardens of the Zoological Society. By John Petherick, F.R.G.S., H. M. Consul for the Soudan.

Since 1853 I have devoted from six to seven months of each year to the exploration of some of the unknown regions of Central Africa.

My starting-point, Khartoum, at the junction of the Blue and White Niles, in lat. 15½° N., a town of about 60,000 inhabitants, is the capital of seven provinces dependent on Egypt, called the Soudan, consisting of the whole of that, for the most part sandy, district between the second Nile cataract at Wadi Halfa and the territories inhabited by the naked negro in 13° N. lat.; whilst its breadth extends from the borders of Darfour on the west to the shores of the Red Sea and Abyssinia on the east.

Leaving Khartoum, and navigating the White Nile to between 9° and 10° of N. lat., a narrow channel, and for the most part overgrown with reeds, which by former Nile navigators had been considered unnavigable, attracted my attention, and pursuing it, not without difficulty finding my way through some narrow openings in a forest of reeds, I found this to be the connexion between a large lake and the Nile, of which it is one of the most important feeders hitherto known.

This lake, according to the time it occupied me to sail in a well-appointed boat with three large latteen sails, from one extremity of it to the other, after making allowance for the windings of the open passages through the dense vegetation with which it is for the most part covered, I consider to be about 180 miles long, and perhaps some 60 miles wide.

Its waters, ornamented with several promontories and islands,

more or less wooded with sycamores, acacias, and mimosas, and but little frequented by man, literally swarm with Crocodiles and Hippopotami.

The latter in particular made many rude and uncouth attempts to dispute the right of passage over their hitherto secluded home, by attacking my boat, battering-ram fashion, both under and on the surface of the water; and on one memorable occasion, to the surprise and horror of all on board, a huge beast, suddenly raising half its great carcass with an agility hardly to be expected out of the water, close under the bows, carried off my unfortunate cook from the gunwale on which he was sitting, one bite of the animal's powerful jaws sufficing to sever his body in two at the waist.

It was here, whilst returning in the month of April in the year 1858 from the regions of the equator, where I founded an establishment of twenty-five men (Arabs from the neighbourhood of Khartoum), for the barter of elephants' tusks with the aborigines, the Niam Niams, that the "look-out" at the mast-head, almost frantic with excitement, called out "A young Hippopotamus," pointing to the reeds within a few yards of which we were sailing. A dozen of my sailors leaped into the water, and, disappearing amongst the thick herbage, soon returned, one of them grasping in his arms a young animal about the size of a spaniel, and kept afloat and propelled towards the boat with shouts of delight by his companions.

Fortunately for the safety of the men, the old lady Hippopotamus was not at home, and so distant from her charge as not to hear the cries of her baby (similar to those of a young calf), or the affair might not have terminated so favourably. A piece of the navel-string, 15 inches long, was still dangling to its body, and did not detach itself for several days afterwards; from which I inferred its birth could not have extended over a day or two.

The unexpected but welcome guest was reared on milk, and in its absence with meal and water, being treated with all the attention we could bestow on it, and is now, judging from its thriving condition, as grateful as its owner for the hospitality it is enjoying at your splendid Gardens in the Regent's Park.

So large a sheet of water as the "Bahr il Gazâl" will naturally attract great numbers of the feather tribe, and it was in this lake that I first made the acquaintance of a very handsome Stork (*Mycteria senegalensis*) and the *Balæniceps*.

Of both these rare birds I was fortunate enough to procure living specimens; the former of which, with numerous rare animals, such as the Elephant, Rhinoceros, two species of Ant-Bears, a rare Monkey, and I believe a new species of Antelope, unfortunately died during the long and arduous journey from Central Africa through Egypt to the Mediterranean.

The skin of the Stork, however, has been preserved, with a few other skins of birds, a remnant of a large collection made between the 5th and 15th degrees of N. latitude, but unfortunately lost in the Upper Nile-cataracts of Nubia. The few skins alluded to as having been saved have been examined by your obliging Secretary,

Mr. Sclater, to whom I am indebted for many acts of kindness since my return to England*.

Two living specimens out of six *Balæniceps* shipped at Khartoum (but perhaps out of a score partially reared, the first, as you are well aware, imported into Europe) have, almost against hope, survived the apparent insurmountable difficulties of the trying journey across nearly one-half the continent of Africa, and are at length, I am proud to say, safely housed in your commodious Gardens.

The *Balæniceps*, although found only in or near water, is but rarely seen on the banks of the Nile, and then only during a short period of the year, when the interior is dried up, in the summer, during the short hot season preceding the rains.

It prefers the natural tanks and morasses of the interior, where the shallowness of the water distributed over a large surface affords it greater facilities for wading than the banks of the Nile. These frequently shelve off into deep water more or less abruptly, and thus furnish but comparatively few spots favourable to the support and habits of the bird.

For this reason, at about 100 miles west of the Nile, in from 5° to 8° N. lat., at Gaba Shambyl, where I have a station of elephant-hunters, these interesting birds exist in greater numbers than on the Nile, or the comparatively deeper waters of the Bahr il Gazâl, the lake to which I have alluded, and of which I have the honour of being, if not, strictly speaking, the discoverer, at least the first navigator.

At Gaba Shambyl, striking off directly west from the Nile, the country for the first 30 miles rises with an almost imperceptible slope, when it again decreases in elevation for a distance of 60 to 70 miles. Here it becomes a large morass, with occasionally dry spots, which form so many islands in a sheet of water after the annual rains, that from north to south extends probably over 150 miles, having no outlet directly to the Nile, but, when the water is at a certain height, overflowing into a channel connecting it with the Bahr il Gazâl. This reservoir, which is more or less supplied with water all the year round, abounds in reeds and thick bush, and is the favourite retreat and home of the *Balæniceps*.

* Mr. Petherick's skins are in a condition which renders their specific determination rather difficult. The most noticeable are,—

Haliaëtus vocifer, juv.
Halcyon semicærulea (Gm.) ?
Coracias abyssinica (Linn.).
Merops ægyptius?
Bucorax abyssinicus.
Lanius macrocercus, De Fil.
Prionops cristatus, Rüpp.
Laniarius chrysogaster, Sw.
—— *erythrogaster*, Rüpp. ?
Lamprotornis purpuroptera, Rüpp.
Notauges superbus, Rüpp.
Colius senegalensis?
Schizorhis zonura, Rüpp.
Pœocephalus meyeri, Rüpp.
Læmodon vielloti.
—— *leucocephalus*, De Fil.
Œdicnemus affinis, Rüpp. ?
Cursorius, sp. ?
Falcinellus igneus.
Ardeola bubulcus.
Nycticorax europæus.
Anastomus lamelligerus.
Mycteria senegalensis.
Parra africana.
Plectropterus rüppellii, Sclater.
Sterna (2 sp.).

—(P. L. S.)

The birds here are seen in clusters of from a pair to perhaps one hundred together, mostly in the water, and when disturbed will fly low over its surface, and settle at no great distance; but if frightened and fired at, they rise in flocks high in the air, and, after hovering and wheeling around, will settle on the highest trees, and as long as their disturbers are near will not return to the water. Their roosting-place at night is, to the best of my belief, on the ground. Their food principally is fish and water-snakes, which they have been seen by my men to catch and devour. They will also feed on the intestines of dead animals, the carcases of which they easily rip open with the strong hook of the upper bill. The breeding-time of the *Balæniceps* is in the rainy season, during the months of July and August, and the spot chosen is in the reeds or high grass immediately on the water's edge, or on some small elevated and dry spots entirely surrounded by water. The birds before laying scrape a hole in the earth, in which, without any lining of grass or feathers, the female deposits her eggs. As many as a dozen eggs have been found in the same nest. Numbers of these nests have been robbed by my men of both eggs and young, but the young birds so taken have invariably died. After repeated unsuccessful attempts to rear them and more trouble than you can imagine, after two years' perseverance I at last succeeded in hatching some eggs under hens, which, at a considerable distance from Gaba Shambyl, I procured from the Raik negroes. As soon as I got the hens to lay, and in due time to sit, by replacing several of their eggs with half the number of those of the *Balæniceps*, as fresh as possible from the nest, the locality of which was previously known, I eventually succeeded in hatching several birds. These ran about the premises of my camp, and, to the great discomfort of the poor hens, *would* persist in performing all sorts of unchicken-like manœuvres with their large beaks and extended wings in a small artificial pool constantly supplied with water by several negresses retained in my service for their especial benefit. Negro boys of the tribe (the Raik) were also employed to supply their little pond with live fish, upon which, and occasionally the intestines of animals killed for our use, chopped into small pieces, they were reared.

As may be supposed, the birds became the pets of my "Bizouks," as I frequently called my Khartoumers; and as they grew up, with extended wings and a rattle-like noise produced by the snapping of their bills, they would follow them round the large enclosure of my camp.

During their journey to England, six months' confinement in a cage has greatly affected their health, and I dare say soured their tempers; at least, such to a certainty would be the effects on myself if placed in a similar predicament. But, in common with, I venture to say, every one connected with the Society, I trust that my attention and trouble, to say nothing of the expense which I have been put to,—although perhaps a more important feature than most of you may be aware of,—may be rewarded by their recovery and well-being; and I hope if, as there will be no difficulty on my part, they become the

property of the Society, they will long live to adorn, and perhaps enhance, the merits of the rare collection amongst which they are at present, with their countryman the Hippopotamus, so hospitably received.

4. Note upon the Genus Cypridina, Milne-Edwards, with a Description of some New Species. By W. Baird, M.D., F.L.S.

(Annulosa, Pl. LXXI.)

The genus *Cypridina*, belonging to the Ostracod Order of the Entomostracous Crustacea, was founded by Milne-Edwards in 1838, in Lamarck's 'Hist. Nat. An. s. Vert.' vol. v., in a note to the genus *Cypris*. It was afterwards more fully detailed in his 'Hist. Nat. Crustac.' vol. iii. At the time of the publication of that work only one species was known; now there are about twenty, and in the paper now before the Society I propose adding four more. The species already described are—

1. Cypridina reynaudii, M.-Edwards, Hist. Nat. Crust. iii. 409. t. 36. f. 5, 1840.

2. C. elliptica.

Asterope elliptica, Philippi, Archiv. f. Naturg. vi. 1. p. 186. t. 3. f. 9–11, 1840.

3. C. mediterranea, Costa, Agli Scienz. d'Ital. 57. t. 1. f. 1–13, 1845.

4. C. macandrewii, Baird, Ann. & Mag. Nat. Hist. 2nd ser. i. 21. t. 6 B. f. 1–7, 1848.

5. C. adamsi, Baird, Ann. & Mag. Nat. Hist. *l. c.* t. 7, 1848.

6. C. bimaculata.

Cypris bimaculata, Nic. Gay, Hist. Fisic. de Chile, iii. 294. t. 4. f. 6, 1849.

7. C. cærulea.

Cypris cærulea, Nic. Gay, Hist. Fisic. de Chile, t. 4. f. 66, 1849.

8. C. brenda, Baird, British Entomostraca, 181. t. 23. f. 1, 1850.

9. C. zealandica, Baird, Proc. Zool. Soc. 1851, t. (Annulosa) 17. f. 11–13.

10. C. interpuncta, Baird, Proc. Zool. Soc. *l. c.* t. 17. f. 8–10.

11. C. mariæ, Baird, Proc. Zool. Soc. *l. c.* t. 17. f. 5–7.

12. C. GLOBOSA, Liljeborg, Cladoc. Ostrac. Copepod. in Scania occurr. 171. t. 17. f. 2–10, 1853.

13. C. GIBBOSA, Dana, Crustacea of U. S. Explor. Exped. xiv. 1295, t. 91. f. 4, 1853.

14. C. FORMOSA, Dana, Crust. U. S. Explor. Exped. *l. c.* 1296. t. 91. f. 5, 1853.

15. C. LUTEOLA, Dana, Crust. U. S. Explor. Exped. *l. c.* 1291, t. 91. f. 1, 1853.

16. C. PUNCTATA, Dana, Crust. U. S. Explor. Exped. *l. c.* 1293, t. 91. f. 2, 1853.

17. C. EXCISA, Stimpson, Invert. of Grand Manan, Smithson. Contrib. to Knowledge, t. 2. f. 28, 1854.
= *C. brenda*, Baird, 1851, *fide* specimens.

18. C. OBLONGA, Grube, Archiv. f. Naturg. 1859, 335. t. 12. f. 2, 3, 1859.

PHILOMEDES, Liljeborg.

19. P. LONGICORNIS, Liljeborg, Cladoc. Ostracod. Copepod. in Scania, t. 26. f. 4, 5, 1853.

20. P. OLIVACEUS.

Cypridina olivacea, Dana, Crust. U. S. Expl. Exped. *l. c.* 1294. t. 91. f. 3, 1853.

Of the new species about to be described, one is a native of Europe, two of the Indian Ocean, and one of Australia.

1. CYPRIDINA NORVEGICA, Baird. (Pl. LXXI. figs. 4, 4 *a*–4 *d*.)

Carapace-valves oval, somewhat compressed, smooth and shining The notch or sinus at the anterior extremity is not deep; the beaks are small and somewhat thickened round the margins. The dorsal margin is gently rounded; the ventral is slightly arched, projecting at its upper extremity immediately beneath the notch, and at its inferior extremity is rather sharply gibbous or prominent, which, seen from internal surface, shows a duplicature of the shell. The surface is polished, not punctured, and is of a straw-colour. In shape it appears to resemble very much the *Cypridina luteola*, of Dana* from the Sooloo Sea. The shell, however, is *ovate*, not *ovoid*; and the inferior extremity, instead of being rounded, is gibbous or projecting anteriorly.

Length 1½ line; breadth 1 line.
Hab. Coast of Norway (*R. M'Andrew, Esq.*).
Mus. Brit.

2. CYPRIDINA GODEHEVI, Baird. (Pl. LXXI. figs. 2, 2 *a*–2 *c*.)

Carapace-valves oval and ventricose, produced into a point at the

* United States' Exploring Expedition, Crustacea, vol. xiv. p. 1291, pl. 91. f. 1.

posterior extremity. The anterior extremity is rather narrower than the posterior; the sinus or notch is rather deep, the beaks are sharp-pointed and thickened along the margins. The surface is marked with numerous, minute punctations, and is of a deep yellow or saffron colour.

Length 3 lines; breadth 2 lines.

Hab. Madras, in 8 fathoms. From the Collection of Mr. Cuming.

Mus. Brit.

In the 'Mémoires pour les Savans Étrangers,' vol. iii. p. 269, there is an exceedingly interesting communication from M. le Commandeur Godeheu de Riville on the luminosity of the sea. In that paper he describes and figures a little creature which he found was the cause of this luminous appearance. The body of the animal, he says, was contained in a small, transparent shell, resembling in form that of an almond cleft down the side, and which was notched at its upper part. This shell, though roughly figured, pretty accurately represents this species of *Cypridina*, and I have little doubt our species is the same as Riville there describes and figures. The part of the ocean where he met with it was off the coast of Malabar.

3. Cypridina ovum, Baird. (Pl. LXXI. figs. 3, 3 *a*, 3 *b*.)

Carapace-valves of a perfect ovoid shape, and very ventricose. Anterior extremity slightly narrower than posterior. The surface of the valves is marked with exceedingly minute punctations, with numerous, round, quite smooth spots, of a brownish-yellow colour, distributed over it, appearing as if they were excavated out of the surface of the shell. The notch at the anterior extremity is rather deep; the beaks are somewhat pointed, slightly incurved and thickened along the margins; and the posterior extremity is rounded without any appearance of gibbosity.

Length $1\frac{1}{2}$ line; breadth $1\frac{1}{4}$ line.

Hab. Chinese Seas. Collected by Sir E. Belcher, C.B. From the Collection of Mr. Cuming.

Mus. Brit.

4. Cypridina albo-maculata, Baird. (Pl. LXXI. figs. 1, 1 *a*, 1 *b*, 1 *c*, 1 *d*.)

Carapace-valves of an ovate-ventricose form, rounded on the dorsal and ventral margins, and slightly, but distinctly, produced into a point in the centre of the inferior extremity. The surface is marked with numerous, small, distinct punctations, and conspicuously blotched with several large, bright white patches, which are slightly raised and strongly punctured. There are only two large ones on the right valve, and three on the left. The notch at the anterior extremity is rather deep, and the edges of the beak are incurved, pointed, and thickened along the margins. The anterior extremity is rather narrower than the posterior.

Length 4 lines; breadth 3 lines.

Hab. Swan River. From the Collection of Mr. Cuming.

Mus. Brit.

5. Philomedes longicornis, Liljeborg. (Pl. LXXI. figs. 5, 5 *a*, 5 *b*, 5 *c*.)

Carapace-valves of a squarely-ovate shape, somewhat compressed, and covered with numerous, very small punctations. The notch at the upper extremity is wide and deep, and the beaks are obtuse and fringed along the margin. The posterior extremity is square-shaped, with a slight projection at the anterior corner. The superior antennæ are provided with two very long setæ. When in fluid, there is a small, roundish, black mark visible on each of the valves, near the centre, but a little nearer the anterior extremity. This species was taken in the towing-net, in Whale Sound, by Dr. Sutherland in 1852, who remarks in his notes of the voyage that the animals often come springing up from the bottom to the surface of the vessel in which they were placed after their capture; their motions then ceased, and they again sank to the bottom. It was described by me about the end of the same year under the name of *Cypridina isabella*, after the ship in which Dr. Sutherland was, and which at the time was engaged in the unsuccessful search after Sir John Franklin. My description, however, remained in MS., and my attention was some time afterwards called to the work of W. Liljeborg on the 'Entomostraca of Sweden,' published in 1855. At page 176 he describes an animal which I consider identical with this, found by him on the coast of Sweden, and which is figured in plate 26, figs. 4, 5. From its possessing two very long setæ on the superior antennæ, and wanting the appendage on the second pair of maxillæ, he has formed a distinct genus for it under the name of *Philomedes*.

Length $1\frac{1}{2}$ line; breadth $\frac{1}{2}$ line.

Hab. Whale Sound, lat. 77° N., long. 71° 37′ W. (*Dr. Sutherland*).

EXPLANATION OF PLATE LXXI.

Fig. 1. *Cypridina albo-maculata.* 1 *a*. Ventral view. 1 *b*. One of the white spots, magnified 15 diameters. 1 *c*. Portion of the surface, magnified 75 diameters. 1 *d*. Dark portion of lucid spot.

Fig. 2. *Cypridina godehevi.* 2 *a*. Ventral view. 2 *b*. Portion of surface, magnified 75 diameters. 2 *c*. Lucid spot, magnified 75 diameters.

Fig. 3. *Cypridina ovum.* 3 *a*. Ventral view. 3 *b*. Portion of surface, magnified 75 diameters.

Fig. 4. *Cypridina norvegica.* 4 *a*. Ventral view. 4 *b*. Interior of valve. 4 *c*. Lucid spot, magnified 75 diameters. 4 *d*. Portion of surface, magnified 75 diameters.

Fig. 5. *Philomedes longicornis.* 5 *a*. Ventral view. 5 *b*. Portion of surface, magnified 75 diameters. 5 *c*. Lucid spot, magnified 75 diameters.

Fig. 6. *Estheria compressa.* 6 *a*. Ventral view. 6 *b*. Portion of surface between the ribs, magnified 75 diameters.

5. Description of a New Genus of Freshwater Bivalve Mollusca, belonging to the Family Corbulidæ, from the Collection of Hugh Cuming, Esq. By Henry Adams, F.L.S.

Genus Himella, H. Adams.

Testa tenuis, inæquilateralis, inæquivalvis, valva sinistra majore, clausa, parva constrictione ab umbonibus ad marginem ventralem extendente, epidermide vestita; umbonibus tumidis, obtusis. Cardo in valva dextra dente obscuro, in valva sinistra fossa congruente; ligamento externo; cartilagine interna, in cartilaginis processu angusto, sub-horizontali in utraque valva recepta. Linea pallialis vix sinuata.

Shell thin, inequilateral, inequivalve; the left valve the larger, closed, with a slight constriction extending from the beaks to the ventral margin, covered with an epidermis; beaks tumid, obtuse. Hinge composed of an obscure tooth in the right valve, with a corresponding cavity in the left valve; ligament external; cartilage internal, contained in a narrow, almost horizontal, cartilage-process in each valve. Pallial line slightly sinuated.

Himella fluviatilis, H. Adams.

H. testa transverse oblonga, antice rotundata, postice truncata, margine superiore sub-recto; valvis externe rugosis, epidermide pallido-fusca; umbonibus sub-anterioribus, decorticatis.

Shell transversely oblong, rounded anteriorly, truncated posteriorly, the superior margin nearly straight; surface of valves rugose, covered with a light-brown epidermis; beaks subanterior, eroded.

Long. 10, lat. 6, cras. 4 lin.

Hab. River Marañon.

This interesting genus appears to have greater affinity with *Azara*, D'Orbigny, than with any other member of the *Corbulidæ*; but differs considerably from that genus in the form and texture of the shell, the thinness of the valves, and the disposition of the cartilage-processes of the hinge. In its habits also it is truly fluviatile, being found in the River Marañon, whence Mr. Cuming's specimens were obtained by Mr. Bates.

6. Note on the Blood-corpuscles of the Japanese Gigantic Salamander (Sieboldia maxima). By Edwards Crisp, M.D., F.Z.S., etc.

The blood-corpuscles of this animal in their general aspect, irrespective of size, bear a great resemblance to those of the Water-newt (*Triton cristatus*). They vary much in diameter, some being from a third to a fifth smaller than the majority. They are of a bright straw-colour, which colour they retain when dried on the glass; the nucleus and nucleoli being of a lighter hue and more transparent. The blood also contains innumerable transparent vesicles of an ellip-

tical shape, about one-third the size of the human blood-corpuscle; but, as the skin of the reptile is abundantly covered with slimy mucus, it is probable that in taking the blood (a very small quantity of which was obtained) the mucus was mixed with it, and produced these vesicles, which differ from any that I have seen in the blood of other reptiles.

With the blood of the Salamander I examined that of the Water-newt (*T. cristatus*) and that of the Common Frog (*R. temporaria*), both reptiles being alive. The drawings of the corpuscles which I exhibit will give the relative sizes; they are all magnified 500 diameters. I have also added a drawing of the human blood-corpuscle, by way of comparison. In these illustrations the largest corpuscles, which are far more numerous than the others, have been selected.

They measure as follows:—

	Fractions of inch in diameter.	
Blood-corpuscle of Man	$\frac{1}{3350}$.	
	Long diameter.	Short diameter.
Blood-corpuscle of *Sieboldia*	$\frac{1}{600}$ to $\frac{1}{490}$	$\frac{1}{1000}$ to $\frac{1}{870}$.
Nucleus of same	$\frac{1}{930}$	$\frac{1}{1860}$.
Blood-corpuscle of *Triton cristatus*	$\frac{1}{860}$	$\frac{1}{1830}$.
Blood-corpuscle of *Rana temporaria*	$\frac{1}{1020}$	$\frac{1}{2100}$.

The most interesting and important circumstance connected with this examination, is that this Salamander, a non-perennibranchiate* reptile (as I believe), probably has a blood-corpuscle as large, or nearly as large, as the Proteus and Siren, reptiles which retain their gills.

In the excellent and original papers by Mr. Gulliver in our 'Proceedings' for 1845 and other years, "On the size of the Red Corpuscles of the Blood in the *Vertebrata*," that gentleman infers that, "although there is no relation between the size of the corpuscle and that of the animal in different orders, in the same order the largest species have generally larger corpuscles than the smallest species. Thus in the large Ruminants the corpuscles are distinctly larger than in the smaller; and the same fact is observable in the Rodents. In these examples the gradation in the size of the corpuscles may not exactly follow that of the animals; but none of the very small species have corpuscles so large as those of the largest species."

The examination of the blood of this reptile is probably another confirmation of the general correctness of Mr. Gulliver's opinion; but in my examination of the blood-corpuscles of a great many species of vertebrate animals I have found several deviations from this law, more especially in the Ophidian reptiles and in the Osseous fishes; among the Ruminants too, many of the smaller Antelopes have larger corpuscles than the Giraffe. In some of the *Cervidæ* the size of the corpuscle does not correspond to that of the animal. In the *Ophidia*

* It has been shown by Van der Hoeven that the *Sieboldia* is a true Perennibranchiate, although there is no gill-aperture present, or rather it has early disappeared. See his 'Zoology' (Clarke's translation), ii. 242.—P. L. S.

there are likewise several exceptions; but the osseous fishes, I believe, afford numerous examples, especially among the *Salmonidæ* and *Scomberidæ*. Thus I have recently examined the blood of the Common Tunny (*Thynnus vulgaris*), weighing about 320 lbs., and the corpuscles were rather smaller than those of the Mackerel (*Scomber scomber*).

I have also had an opportunity of examining some of the cast skin of the Salamander, which has been thrown off since the arrival of the reptile at the Gardens. The subjoined are drawings I have taken of this and of the cast skin of the *Triton cristatus*: fig. 1 represents the former and fig. 2 the latter, magnified 60 diameters.

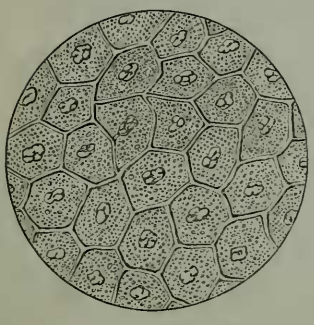

Fig. 1.

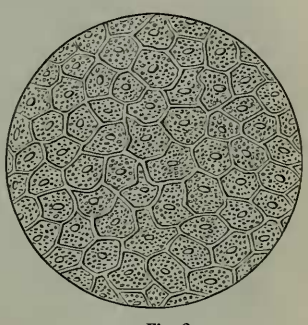

Fig. 2.

It will be seen that the epidermoid cells in both are hexagonal, and that those of the Salamander (fig. 1) are more than double the size of those of the Triton (fig. 2); the former measuring about $\frac{1}{3\frac{1}{3}0}$th of an inch in diameter, the latter about $\frac{1}{8\frac{1}{7}0}$th. It will be curious hereafter to observe the relative proportion of these cells to the blood-globules in other reptiles.

I purpose placing before the Society at an early period a comparative estimate of the size of the blood-corpuscles of this Gigantic Salamander, and those of the Siren, Lepidosiren, Proteus, and other reptiles.

April 24th, 1860.

Dr. Gray, V.P., in the Chair.

Mr. Bartlett exhibited a series of the eggs of Struthious birds, including those of the Northern and Southern Ostrich, the American and Darwin's Rhea, the Common and Spotted Emeus (*Dromæus novæ hollandiæ* and *D. irroratus*), the Common Cassowary, and the Mooruk (*Casuarius bennettii*). The latter had been laid in the Society's Gardens on the 21st of April by the bird received from